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Georgia's Grow-Your-Own Teacher Programs Attract the Right Stuff

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*There is a shortage of educators and there are various factors that account for the lack of teachers. Millions of new teachers will be needed in the near future and the present study juxtaposes the vocational personality profiles of adolescents (*N = *262) participating in Future Educators of America programs in Georgia to in-service teachers' profiles as determined by Holland's* Self-Directed Search *inventory. Using Holland's theoretical framework for congruence between one's personality and the workplace as a lens, the results indicated that adolescents in the future educator programs shared the same Holland code as in-service teachers. Noting that teachers tend to return to the area in which they were raised, findings from this research have serious implications for the identification and recruitment of tomorrow's teaching force.*

Key words: teacher recruitment, adolescents, teacher identity, self-directed search inventory

For more than five decades, researchers and organizations reported a severe teacher shortage in America's schools (Boe & Gilford, 1992; Haggstrom, Darling-Hammond, & Grissmer, 1988; National Commission on Excellence in Education, 1983; Ray, 1978). Researchers predicted that because of increased enrollments and teacher attrition, the demand for new educators would prompt a lowering of professional standards for educators by offering alternative routes to certification, thereby allowing poorly qualified teachers to enter the profession. Subsequently, student academic performance would be compromised. Now, the teacher shortage is more pervasive than ever.

Researchers estimated that in the United States (US) approximately 2.7 million new teachers were needed to fill the teacher shortage between 1998 and 2009 along with 200,000 each year afterward for the foreseeable future (Hussar, 1998; Hussar & Gerald, 1996). While it can be argued that there is a surplus of certified teachers who actively choose not to teach (Ingersoll, 2003), researchers continue to cite a shortage of teachers regardless of the available teaching pool from which to draw (American Association for Employment in Education, AAEE, 2006; Fideler & Haselkorn, 1999; Johnson et al., 2001).

The American Federation of Teachers (2001) claims that the 1,300 schools and colleges of education in the US already produce enough teachers; yet, three out of 10 do not go into classrooms. Some report that there is an uneven distribution of teachers, especially in hard-to-staff schools in highly urban and rural areas of the country, certain geographical areas nationwide, and in certain content areas (AAEE, 2006; Darling-Hammond, 2001; EFA Global Monitoring, 2009; National Association of State Boards of Education, 1998; Olson, 2000; Voke, 2002; Wilson, Darling-Hammond, & Berry, 2001).

Others feel that there is a revolving door of teacher attrition and turnover may explain the shortage (Darling-Hammond, 2001; Ingersoll, 2001a, 2001b). A review of the literature

indicates that the shortage is not consistent across content areas. Severe shortages are reported in mathematics, science, special education, bilingual education, English as a Second Language, and foreign languages (AAEE, 2006, 2009; Bradley, 1999). Research indicates that various factors begin to explain the shortage and retirements, teacher attrition, and increased enrollments appear to be the predominant causes.

State of Affairs

Retirement remains a primary reason for teacher shortages (National Commission on Teaching and America's Future, 2002). Research in North America shows that almost one-third of the US population is part of the Baby Boomer generation and will be eligible to retire soon (Der Bedrosian, 2009). In addition to these shifts in retirement rates, teacher attrition rates are disconcerting. Researchers find that 30% to 50% of US teachers leave the field sometime during their first five years of teaching (Ingersoll, 2002; Lambert, 2006; National Commission on Teaching and America's Future, 2002). Feelings of isolation in the classroom, inadequate classroom management skills, work schedules, and insufficient preparation for dealing with cultural diversity in schools are cited frequently as reasons why teachers leave the profession.

Even more alarming is that for those who enter the teaching profession through alternate routes, such as emergency certification, the rate of attrition can be as high as 60% (Darling-Hammond, Berry, & Thoreson, 2001) within the first two years of teaching (Lauer, 2001). While the number of teachers continues to decrease, student enrollments are rising. Historically in the US, enrollment in elementary and secondary schools grew rapidly during the 1950s and 1960s and then decreased every year between 1971 and 1984. Then, in 1985, enrollments began to increase, hitting new record levels in the mid-1990s and continuing to reach new record levels in each subsequent year (National Center for Education Statistics, 2008). Unfortunately, teacher supply has not kept up to accommodate enrollment increases (Curran & Abrahams, 2000; The New Teacher Project, 2010) and "the most promising approach to reduce teacher shortage is to increase the supply of qualified teachers" (Boe, Cook, & Sunderland, 2008, p. 25).

While several prominent national teacher recruitment organizations such as the US Department of Education's (2010) new *Teach* initiative, *Teach for America*, and *Troops to Teachers* aim to increase the number of teachers in America's schools, the success of these programs has been limited. Rotherham (2009) reported that after the two-year commitment to *Teach for America*, approximately one-in-three continue to teach. A review of the literature indicates that school district recruitment typically takes the form of attending career fairs, posting job vacancies on the Internet, and identifying qualities of the "best, brightest, and most talented new staff" (Scheetz, 1995, p. 10). In Georgia, teacher recruitment approaches include the above-mentioned methods as well as the *Double the Double* initiative, which attempts to double the number and diversity of teacher education graduates (Georgia State University, 2005). While official data have not been released, the department chair who oversees the program finds that enrollments and the diversity of the students in the program have nearly tripled from approximately 30 to more than 86 students since its inception (personal communication Fernando Reati, January 13, 2011). However, the need for foreign language teachers continues to exceed supply.

In addition to the *Double the Double* initiative, many Georgia schools have also created *grow-your-own* teacher programs. Programs such as *Examining the Teaching Profession* (Gwinnett County Public Schools, 2009) and *Future Educators of America* (Phi Delta Kappa International, 2008) appear to have promise for thwarting the teacher shortage. As with typical *grow-your-own* programs, secondary school students who show interest in teaching are given incentives such as scholarships to work alongside master teachers in local schools. In many cases, if these individuals choose to work in a high needs school after becoming certified, they

are eligible for salary bonuses and other special benefits (Harrison, 1998; Hines & Mathis, 2007; Rural School and Community Trust, 2008).

In Georgia, the *grow-your-own* programs are found in rural and suburban school districts. In these areas, research notes that it is challenging to attract and retain highly qualified teachers because these districts cannot offer competitive salary (Dewees, 1999; Phillips, 2003; Schwartzbeck, Redfield, Morris, & Hammer, 2003; Beeson & Strange, 2003). Among the regions where teachers experience the lowest salary expenditures is the southeastern part of the US (Beeson & Strange, 2003). Rebore (2004) found that larger school districts, primarily in urban areas, recruit rural teachers by offering them substantial salary increases and better job benefits. The success of these *grow-your-own* programs remains unknown and only anecdotal evidence suggests that these programs are helping offset the teacher shortage (personal communication, Mary Ruth Ray, Page Foundation, April 24, 2010).

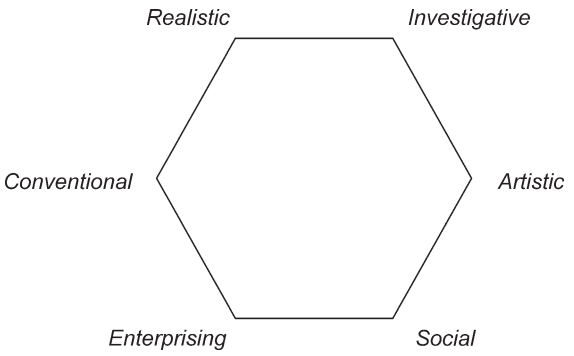
While the teacher shortage is a complex issue involving retirements, attrition, increased enrollments, and limited success of recruiting mechanisms, there is an empirical research base that suggests that one's similarity or dissimilarity in vocational interests to the workplace environment plays a role in the teacher shortage (Caplan, 1987; Swanson, 2008, 2010a, in press) and by knowing more about personal and environmental fit, potential teachers can be identified and recruited into teaching (Swanson, 2010b). Studies focused on the relationship between teachers' vocational interests and career satisfaction indicate that teachers who are highly social as described by the *Self-Directed Search* report moderate or great satisfaction with teaching as a profession (Rayman, 1998; Reardon & Wright, 1999; Schuttenberg, O'Dell, & Kaczala, 1990). Holland (1997) theorizes that the more similar a person's abilities, competencies, and interests are to the workplace environment, the more vocational satisfaction and stability will be met. Conversely, the more divergent one's abilities, competencies, and interests are to the workplace environment, the more vocational dissatisfaction and instability will be found. Holland posits that people seek out environments that provide them with the opportunities to use their talents and share their values and attitudes with others who are similar to them in the ideal.

Theoretical Notions

Holland's theory is based on several key assumptions. First, people can be categorized by their resemblance to each of six personality types: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C). Second, the environments in which people live and work can be characterized using the same classification structure. According to theory, for vocational satisfaction to take place, an individual's interests should be congruent with the workplace environment's requirements of interests, skills, and competencies. To demonstrate his theory graphically, Holland uses a hexagonal model (Figure 1) to show the relationship among the six domains of the typology for both the workplace environment and a person's interests where opposite points on the hexagon indicate opposing interests and environments.

If an individual's two highest scale scores on Holland's *Self-Directed Search* personality inventory (described later) are located on adjacent points (any adjacent two-point combination) along the hexagon, the person's vocational profile (i.e., Holland code) is consistent, leading toward stability of one's vocational interests. For example, a person with the two highest scale scores as Artistic and Social is said to have a consistent profile because the two domains are located next to one another. Conversely, profile patterns composed of elements from opposite sides of the hexagon are least consistent, such as Realistic and Social. Patterns following other types are said to have an intermediate level of consistency. The more closely related the two highest scale scores are, the stronger the individual's vocational profile becomes. The hexagon defines the similarity of the workplace in the same manner. For example, Social environments are said to be cooperative and helpful, whereas Realistic

Figure 1: Holland Hexagon (Holland, 1997)



environments tend to be opposite, that is, workplaces that do not value or support human relationships (Holland, 1997).

Holland's theory situates teachers in the Social domain. According to theory, Social individuals prefer activities that involve working with people to help educate, inform, or enlighten them. Lastly, the hexagon defines the degrees of congruence between people and environments and can be used to predict the expected outcomes related to job satisfaction, achievement, and change in jobs (Holland, 1997). Holland theorizes that people search for environments in which to exercise their talents, express their attitudes, and take on agreeable roles. For example, the most congruent situation for a Social person would be within a Social environment. If disparity exists between the individual's interests and the workplace, professional instability can lead to teachers leaving the profession.

Holland's Theory and Teachers

Holland's vocational codes were made first from expert judgments that were linked to the occupational framework of the U.S. Employment Service's extensive *Guide for Occupational Exploration* (U.S. Department of Labor, 1979), a reference guide that codes and organizes most of the 12,099 occupations listed in the *Dictionary of Occupational Titles* (U.S. Department of Labor, 1977). Later, Holland, and many others, began to test the Holland codes for different vocations and he studied college freshmen and matched participants' vocational aspirations to their vocational preference profile. He reported that foreign language teachers had a Social, Artistic, and Enterprising Holland code (Holland, 1966). Later research indicated that the Social, Artistic, and Enterprising Holland code was consistent for secondary school teachers regardless of subject matter (Gottfredson & Holland, 1996). More subject-specific research on foreign language teachers indicated that not only did these individuals have the aforementioned Holland code, they also had a higher sense of teaching efficacy than those without the Social, Artistic, and Enterprising Holland code (Swanson, 2008).

Such findings are important because examination of an individual's vocational profile offers information not only about a person's interests; it also offers insight into one's vocational personality—including self-beliefs and aspirations. Gottfredson (2002) argues that what Holland (1997) refers to as self-beliefs (the Competencies and Self-Estimates scales of the *Self-Directed Search* Inventory)—"products of learning experiences that have led to preferences and aversions for different activities, and aspirations may be viewed as often resembling goals that may stimulate plans, organize choices, and lead to further learning"—are indeed self-efficacy expectations (p. 200). Self-efficacy beliefs, which emphasizes the exercise of human agency where people can exercise some influence over what they do (Bandura, 2006), have been studied for decades and have been related to various aspects of teaching

(Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Research shows that educators with a higher sense of efficacy exhibit greater enthusiasm for teaching (Hall, Burley, Villeme, & Brockmeier, 1992), have greater commitment to teaching (Coladarci, 1992), and are more likely to remain in teaching (Burley, Hall, Villeme, & Brockmeier, 1991; Glickman & Tamashiro, 1982). Previous research has established a link between teachers' vocational personality, teaching efficacy, and choice to leave the profession (Swanson, 2010a, in press). Thus, knowing that efficacy plays a role in one's decision to remain or leave the profession, it is important to examine one's vocational personality.

Rationale for Study

In Georgia a serious teacher shortage exists. According to the Georgia Professional Standards Commission (2006), demand for teachers is increasing while supply from Georgia teacher preparation programs struggles to meet demand. Data from the Professional Standards Commission (Page Foundation, 2008) indicate that 190,000 to 200,000 new teachers will be needed in Georgia during the next ten years. Furthermore, 50% of all Georgia teachers are at retirement age or will reach retirement age by 2011 and a mass departure of these potential retirees "could cause teacher demand to skyrocket" (p. 1).

Students in future educator groups could serve as a quality source to fill these vacancies. As these future teachers begin to investigate vocational choices, they tend to act on their understanding of themselves while also learning about different occupations (Swanson, 2009). It has been noted in the literature that not only do people tend to go to college near where they were raised, but they often tend to return to their hometowns to teach (Hansen, 2009; Johnson, 1999). By working with such groups, teachers could be mentored at an early age and possibly employed later in area schools. Super (1990) theorizes that individuals begin to crystallize vocational preference between ages 14 and 18, though many students are still investigating career choices after age 18 and even well into their college years. Noting such findings, the researcher chose to study adolescents participating in a future teacher program in public schools in Georgia to see if adolescents interested in becoming teachers had a similar personality profile as those already working and remaining in America's schools (Swanson, 2008).

The present study focuses on the vocational identity of members of Future Educators of America for the purpose of identifying and recruiting more educators at a time of global need. Holland's theory of Vocational Personalities and Work Environments (1997) is used as a framework to answer the following research questions:

1. What is the personality profile of FEA students in Georgia?
2. Is the personality profile congruent with the established personality profile of in-service educators?

Method

Research Group

While there are several organizations taking a proactive stance to recruit educators like *Pathways to Teaching Careers*, *Teacher Cadets*, and *Troops to Teachers*, one group works exclusively with adolescents, the Phi Delta Kappa's *Future Educators of America* (FEA). This organization is the "only international pre-collegiate extracurricular program for prospective teachers" (Phi Delta Kappa International, 2008, p. 1) with a mission to provide students opportunities to explore careers in education.

Phi Delta Kappa hopes that through participation in a FEA chapter, middle and high school age students will gain a realistic understanding of education as a profession and the role of the teacher. FEA chapters recruit students who are interested in a career in education by encouraging them to set educational and career goals early in life, focus on academic achievement, explore teaching through direct experience in the classrooms and become citizen leaders

through school/community service. While a standardized curriculum for FEA programs has not been implemented, students receive information on topics ranging from teaching as a profession to educational issues such as professional mobility, diversity, job security, and other matters. Additionally, students learn about classroom management, student engagement, and instructional strategy.

To become involved in FEA, students are required to meet their school's academic standards for extracurricular activity participation, complete an application form, submit a parent/guardian letter of support, and be recommended by a teacher at their school. If a chapter chooses to set additional criteria for membership, the chapter is encouraged to establish a FEA Honor Society, which typically includes a minimum grade point average (3.00–3.50 on a 4.00 scale) for membership. Students may participate in FEA programs beginning in middle school and continue throughout their secondary school experience. Currently, there are 96 chapters in FEA of Georgia, which is a partnership of PDK and the Professional Association of Georgia Educators Foundation.

Sample

Beginning in 2008, the researcher visited 19 different FEA chapters ($N = 262$) throughout Georgia in rural and suburban schools. Women ($n = 208$) outnumbered men ($n = 54$) and the sample was primarily Caucasian (62%) and African American (22%) followed by Latinos (6%) and Asians (6%). Average age of the participants was 16.47 years and age ranged from 13 to 19 years and the sample's grade point average was 3.41 based on a scale from 0.00 to 4.20. Forty-four percent of the subjects wanted to teach in an elementary school. However, slightly more than one in three (38%) expressed interest in teaching in a high school while only 13% wanted to teach in a middle school context. Interestingly, only one participant expressed interest in teaching post secondary students.

The majority of the participants (58%) indicated that they would like to teach in a suburban school while almost equal numbers preferred to teach in rural (20%) or urban schools (18%). The remainder was undecided. In terms of content area specialty, the largest group (34%) wanted to teach language arts followed by social studies (21%) and mathematics (12%). Few appeared interested in teaching foreign languages (4%), special education (3%), or science (2%). Overall, the sample's demographics accurately represent Georgia's demographics and national teacher demographics, since the majority of public school teachers are white and approximately three out of four are female (Latham, Gitomer, & Ziomek, 1999).

Research Instrument

The *Self-Directed Search Form R* (Holland, 1994a) was designed for adolescents and adults to help them make career and education choices that are aligned with people's interests and abilities. The *Self-Directed Search* (SDS) has been tested over the years with a variety of groups to verify its validity and reliability, especially in terms of gender and ethnic biases. When investigating possible differences between gender and various ethnic groups, the SDS has been found to be consistent with the theoretical predictions (Benninger & Walsh, 1980; Day & Rounds, 1998; Gupta, Tracey, & Gore, 2007; Holland, Powell, & Fritzsche, 1994; Swanson, 1992; Ward & Walsh, 1981). Of particular interest to the present study, research indicates that females tend to have higher Social interests than males (Holland et al., 1994; Koumoundourou, 2004; Niles, 1993; Swan, 2005; Swanson, 2008). For more information regarding differences, see Holland, Fritzsche, and Powell (1994).

As previously mentioned, Holland's theory places individuals into six different domains using six subscales that measure a person's interests. According to theory (Gottfredson & Holland, 1996), each type has unique and different characteristics. Realistic types of individuals are hands-on and practical whereas Investigative individuals tend to be analytical and focus on finding explanations of physical and social realities. Artistic individuals are

expressive and favor creative activities while Social individuals provide help and counseling and focus on social interactions. Enterprising individuals tend to focus on persuasion in business contexts and Conventional individuals focus on establishing orderly routines such as in clerical work.

The SDS is easy for participants to take (approximately 15–20 minutes) and score. Participants mark if they like/dislike certain activities, have/do not have certain competencies, and offer a self-rating of different skills. To determine the personality profile, an individual totals the number of items for each of the six domains. For example, to find one's Realistic score, one must add the Realistic items marked "Like" or "Yes" for the Activities, Competencies, and Occupations sections as well as the two numbers circled for Realistic in the Self-Estimates section.

Then, the individual follows the same process to determine the scores for the other five domains. An individual's personality profile is determined by rank ordering the totals for the six subscales from the highest (50 points maximum) to the lowest (0 points minimum). Holland (1997) recommends working only with the first three highest-ranked domains for smaller studies because extremely large samples are needed for empirical studies using all six classifications. The SDS is commercially used as a vocational preference instrument and the publisher does not permit reproduction of the instrument for scholarly use; therefore, it does not appear in this article's appendices. However, Holland's book (1997) contains the SDS and the *Occupations Finder* in the appendices.

Procedures

After receiving Institutional Review Board permission to conduct human subject research with adolescents, the investigator, a veteran public school educator, contacted FEA coordinators throughout Georgia via email to solicit assistance for this research. Many of the coordinators invited him to speak to their members about the benefits of becoming an educator and to talk with the group about teacher identity, specifically interests and the congruence of interests and vocational choice.

Before starting a discussion about interest matching to vocational choice which typically lasted between 60 to 120 minutes, the researcher asked the students to fill out the SDS and participant demographic sheet. Once completed, the data were entered into a laptop computer for the purpose of showing the participants the results of their interest inventories and discussing Holland's theory of Vocational Personalities and Work Environments (1997). The researcher showed each individual the *Occupations Finder* booklet (Holland, 1994b) so the students could look up their Holland code and see which vocations are most harmonious with their interests.

In addition to discussing congruence between vocational interest and the workplace environment, the researcher presented topics for discussion from research on teachers (Swanson & Moore, 2006), such as teachers' salary and benefits, length of teachers' annual contracts, job availability, educators' stressors, respect, and status. The discussions allowed for ample student participation to ask questions, receive answers, and discuss topics of interest. Many times, teachers invited the researcher to talk to the same FEA group on multiple occasions. Overall, the participants received information about the teaching profession, the importance of careful vocational selection, and applying to college and education programs.

Results

After the initial meetings with participants, the SDS data were input into *SPSS 17.0* for data analysis. Prior to data analysis, an outside reviewer checked the accuracy of entered data points for each of the participants. The internal consistency of the instrument was evaluated, and the results indicated satisfactory instrument reliability. Values for the reliability coefficients were: Realistic (.91), Investigative (.88), Artistic (.89), Social (.90), Enterprising (.89), and Conventional (.87), indicating satisfactory instrument reliability. Each coefficient was

found to be consistent with other studies using the SDS (Holland, Fritzsche, & Powell, 1994) and were deemed acceptable for research purposes as well as for clinical or educational decisions (Henson, 2001).

Next, to determine the personality profile and stability of that profile, means and standard deviations for the summary totals of each subscale (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) were calculated to determine the Holland code for the sample. Table 1 shows that the sample's Holland code was Social, Enterprising, and Artistic.

Table 1: Means and Standard Deviations for Sample Profile

	R	I	A	S	E	C
Total	3973	5411	6303	8540	6634	4591
Means	15.16	20.65	24.05	32.59	25.32	17.52
Standard Deviation	10.16	9.65	12.36	9.27	10.70	9.88

R=Realistic, I=Investigative, A=Artistic, S=Social, E=Enterprising, C=Conventional.

These results confirm findings from previous studies using the SDS, which have consistently classified teachers in the Social domain. People associated with this profile have a preference for activities that "inform, train, develop, cure, or enlighten" (Holland, 1997, p. 24).

Furthermore, the sample group was comprised of Enterprising individuals, who Holland (1997) asserts strive to become influential in public affairs, and who are adventurous, assertive, extroverted, resourceful, and optimistic people. Additionally, these individuals tend to be imaginative, emotional, independent, open, and sensitive creatures (Holland, 1997), characteristics that define Artistic people, such as members of the study group.

After determining the Holland code for the sample, the stability of the profile was juxtaposed against theory. According to Holland, Powell, and Fritzsche (1994), a differentiation of eight points on the aforementioned scale from zero to 50, increases the stability of the personality profile. The first profile (Social) clearly stood out by itself; the second and third domains types (Enterprising and Artistic) were very close, followed by the fourth domain (Investigative). The total differentiation from the first to the sixth domain was 17.43, indicating a clearly defined and differentiated personality profile. Similarly, the environment for teachers tends to be clearly defined as well (Holland, 1997). Therefore, the participants' Holland code was congruent with the work environment when comparing the profile to the Holland hexagonal model (Figure 1).

Furthermore, if a person's profile domains are found to be adjacent to one another on the hexagonal model, this suggests that a person's vocational preference is more predictable and stable. The sample profile domains (S-E-A) were located in an adjacent orientation to one another, which suggests that these people are more predictable in terms of vocational preference. Thus, teachers' expertise, knowledge, training, skills, abilities, vocational values, and beliefs are supported in this educational environment. Moreover, this profile is consistent with Holland's code for a "secondary school teacher (subject not specified)" (Gottfredson & Holland, 1996, p. 201).

Next, the researcher computed correlation coefficients to verify the relationships among the six subscales. Theory purports, as seen in the hexagonal model, that correlations should be low with personality domains found to be opposite one another on the Holland hexagon. The results from the correlation analyses indicated that 14 out of the 15 correlations were statistically significant ($p < .05$) and the correlations for adjacent domains (ranging from .29 to .35) tended to be higher than the correlations for opposite domains (ranging from –.06 to .16).

In general, the results suggest that this sample's profile, S-E-A, is a stable and consistent vocational profile. Furthermore, schools tend to be clearly defined as social environmental domains (Holland, 1997) and there is congruence between the sample's Holland code and the workplace.

Once the Holland code was established, gender differences were examined. Females (n = 208) were found to be on average 16 years of age, holding a mean grade point average of 3.43 (SD = 0.42). The majority reported to be Caucasian (61%) or African American (20%) and wanted to become an elementary teacher (27%), a social studies teacher (17%), or a mathematics teacher (12%). Only 13% of the females wanted to work in a middle school context. The personality profile for this subgroup was S-A-E with a differentiation of 20.54 for the six subscales, again indicating a clearly defined and differentiated personality profile.

Males (n = 54) were found to be similar to females in terms of age. However, there were fewer Caucasians (54%) and more African American (26%) males in the group. Males' mean grade point average (M = 3.28) was lower than their female counterparts and the three highest content areas of interest were social studies (28%), early childhood education (13%), and art (9.3%). Interestingly, more than twice as many wanted to teach either foreign languages (8%) or physical education (7%). Almost eight of every ten males (78%) reported wanting to teach either in a middle school or secondary school. Their Holland code was Enterprising (M = 29.98, SD = 12.71), Social (M = 29.88, SD = 9.57), Realistic (M = 24.42, SD = 12.16) with a differentiation of 10.41 for the six subscales, suggesting an inconsistent personality profile.

Since research indicates that there is a difference between males and females with regard to the SDS, the researcher conducted analyses of variance (ANOVA) to evaluate the relationship between the six subscales for gender differences after verifications that the data met the statistical assumptions necessary to conduct such tests. Three of the six subscales showed significant differences for gender. The ANOVA for the Realistic scale was significant, $F(1,260) = 71.73$, $p < .001$, $\eta^2 = .21$, as were the analyses of variance for the Social and the Enterprising scales, $F(1,260) = 5.89$, $p < .05$, $\eta^2 = .01$ and $F(1,260) = 13.52$, $p < .01$, $\eta^2 = .05$ respectively. These gender differences on the Realistic and Social scales were found to be consistent with the research on gender differences cited earlier.

Following the ANOVA tests, the researcher investigated gender differences from a different perspective by analyzing the top-three domains chosen by each gender using simple rank orders. Table 2 shows that among males Enterprising interests prevailed in the first domain position (35%) whereas females were most attracted to aspects represented in the Social domain (59%). Males' Social interests ranked second (35%) while females were almost tied between the Enterprising (26%) and Artistic (27%) domains. Interestingly, the males in the sample rated Realistic activities and competencies higher (20%) than their female counterparts (3.8%).

Table 2: Top-three Domains Chosen by Gender Ranked by Percentage

	1st		2nd		3rd	
	Males	Females	Males	Females	Males	Females
R	20.4%	1.4%	11.1%	3.8%	20.4%	3.8%
I	5.6%	7.2%	14.8%	13.5%	16.7%	22.1%
A	13.0%	19.7%	11.1%	26.9%	16.7%	14.4%
S	24.1%	58.7%	35.2%	22.6%	13.0%	12.5%
E	35.2%	10.6%	18.5%	26.0%	18.5%	31.7%
C	1.9%	2.4%	9.3%	7.2%	14.8%	15.4%

R=Realistic, I=Investigative, A=Artistic, S=Social, E=Enterprising, C=Conventional.

Next, the researcher examined possible group differences by ethnicity, context of teaching preference, and grade point average. There were not any differences in the profile between the two largest ethnic groups (Caucasian and African American), between those who wanted to teach in rural, suburban, or urban schools, nor between different grade point averages. All of the personality profiles were S-E-A, clearly defined, and well-differentiated ranging from 13.62 to 19.85 points on the 0–50 point scale. Correlation analyses revealed a slight positive relationship between grade point average and the S-E-A profile for only the Social (.18) and Enterprising (.20) domains. Afterward, the investigator examined the participants by what subject matter they indicated interest in teaching, and 33% of those interested in teaching in shortage areas (n = 58), specifically math, science, foreign language, and special education, 33% had the S-E-A Holland code.

However, surprisingly, participant age affected differentiation of the sample's personality profile. While the personality profile remained unchanged (S-E-A) by looking at each different age group, differentiation increased with age. Those reported to be 15 years of age or younger had a total differentiation among the six subscales of 15.96. However, as the age of the group increased, so did the total differentiation. The span between the first and last domain increased from 17.47 to 19.11 to 19.34 for those who reported to be 16, 17, and 18 years of age respectively, adding support to Super's (1990) notion that a more crystallized vocational personality profile emerges as one moves from adolescence to a young adult.

The final analysis focused on determining the percentage of participants having the same Holland code and iterations of that code. Thirty-one percent of the sample (n = 80) had Holland codes using iterations of the three domains (S-E-A, S-A-E, A-S-E, E-S-A, etc) and 13 subjects (12 females) belonged to the S-E-A group without iteration. Interestingly, of the 80 subjects classified by these profile iterations, only eight of the subjects were males.

Discussion

This research sought to identify the personality profile of FEA students in Georgia and the overall Holland code established for this sample (Social, Enterprising, Artistic) was very similar to the classification for teachers (Social, Artistic, Enterprising) as reported by Gottfredson and Holland (1996). The sample's profile was found to be highly differentiated adding to the stability of the profile, as posited theoretically. Adding to the accuracy of this finding, correlation analyses revealed positive correlations among the Social, Artistic, Enterprising domains, which offer further support to the accuracy of this classification and to Holland's theory (1997). Further, the SDS behaved in a reliable manner and measures of internal consistency for the six subscales were high (0.87–0.91) and within the range of those reported by Holland, Fritzsche, and Powell (1994).

Like the aforementioned Holland code reported by Gottfredson and Holland (1996), the participants' S-E-A profile is considered reliable because the profile pattern is compiled from adjacent points on the hexagon. Even though the sample's second and third domains are reversed from the findings reported by Gottfredson and Holland (1996), Holland states that the profile is accurate for teachers because of the low differentiation between the sample's second and third domains (1.27) (John L. Holland, personal communication, April 21, 2008). In fact, Holland recommends that individuals "rearrange the code letters in all possible ways to explore occupations under those three letter codes" (Holland, Powell, & Fritzsche, 1994, p. 268) to enhance the congruency between interests and the workplace environment.

Additionally, care should be taken when interpreting males' scores on the SDS. Consistent with the literature, males in the sample tended to have more interests in Realistic activities than females, and their relatively lower Social scores should not be discounted when interpreting their Holland codes. Even though only 31% of the sample had Holland codes using iterations of S-E-A profile, 82% of the entire sample had Social interests as their highest rated domain on

the SDS. The Social domain was the second highest rated domain for 57% of the entire sample. Even though females and males had different Holland codes, S-A-E and E-S-R respectively, both profiles are stable according to theory and can be considered having high Social vocational interests. Such interests are congruent with the workplace environment because schools have been classified as highly Social workplaces (Holland, 1997), and people working in educational settings should have similar Social interests. Therefore, it seems fitting that individuals with high Social interests would flourish in a Social workplace environment. Conversely, a lack of harmony between one's interests and the workplace may have disastrous consequences such as job dissatisfaction and changes in employment, which could negatively impact the teacher shortage.

Findings from this research have serious implications for the recruitment of educators. First, it appears that this sample of Georgia's FEA members shares the same Holland code as teachers currently working in schools today. Participation in an FEA chapter appears to serve as an important point of convergence vocationally for high school students interested in teaching. While the SDS has been shown to be a viable instrument to help individuals with career selection, data from this study suggest that it can be used effectively to identify those with the Holland code for teachers and help those who do not have the Social, Enterprising, and Artistic code with vocational options that may include teaching. Additionally, findings presented here also give evidence that these *grow-your-own* teacher programs are attracting individuals who have in increased likelihood of finding satisfaction in the teaching profession. By encouraging early participation in FEA, more individuals may be able to discover an interest in teaching, pursue careers in education, and find vocational satisfaction, stability, and permanence because of the similarity between personality and the workplace.

Such findings for local future educators have serious implications to help offset the teacher shortage. First, Georgia, like many other places throughout the world, has critical shortages of teachers (Georgia Professional Standards Commission, 2006; UNESCO, 2009) and *grow-your-own* teacher programs appear promising to help offset the lack of millions of teachers needed in classrooms around the world (EFA Global Monitoring, 2009). Because teachers tend to return to work close to where they were raised (Hansen, 2009; Johnson, 1999), areas in need of more teachers might benefit from instituting a future educator program, if one does not currently exist, and administering the SDS to adolescents in the program. The SDS has been translated into more than 25 different languages and has been found valid and reliable with adolescents and adults alike (Holland, 1997). Additionally, educational stakeholders may want to initiate a teacher recruitment initiative by working with students who show even some interest in the profession. Research shows that adolescents' negative perceptions and incorrect perceptions about teaching as a profession can be changed by presenting them with factual information (Swanson & Moore, 2006).

Once programs are established, it is strongly recommended that future educator program directors work collaboratively with college of education faculty to nurture these individuals and create joint learning opportunities to foster such professional interest. Higher education faculty members could invite these potential teachers to campus to attend pre-service induction conferences, take part in education and content-area specific classes, and meet with pre-service educators and faculty as well as admissions personnel. For first-generation students whose parents did not attend institutions of higher education, this could be a significant first step to recruitment. Even organizers of state/province, regional, and national meetings could design sessions for prospective FEA members. Here, students would have opportunities to meet other students interested in becoming teachers and learn more about the profession from experts in the field. By early integration into an FEA program, student interests could be matched more effectively to the workplace environment (Holland, 1997).

Additionally, these individuals could begin field experiences working with in-service teachers in classrooms to not only understand teaching from the teacher's perspective but also begin to

build strong self-efficacy beliefs about teaching. Two of the greatest sources of self-efficacy are mastery experiences (having success on a certain task) and vicarious experiences (modeling) (Bandura, 1997). Students could assist teachers and begin to see that their actions can create positive change in the classroom. Efficacy is cyclical in nature (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). That is, the proficiency of a performance creates a new mastery experience, which provides new information that will shape future efficacy beliefs. Increased efficacy leads to greater effort and persistence, which in turn leads to better performance that can increase one's efficacy. The converse is true, too. Therefore, by creating their own mastery experiences working with students as well as observing experts teach children, these potential educators, whose interests are congruent to the workplace environment, can build a strong sense of efficacy and become an integral part of the global educational system.

Lastly, inviting students to join FEA because of high grade point averages needs to be investigated more because findings from this study did not reveal a strong correlation between individual's Holland code and grade point average. In place of a grade point criterion, socialization into the profession may need to be addressed. Theory suggests (Holland, 1997) that because different personality types have different interests, competencies, and dispositions, people tend to surround themselves with people similar to themselves. By clustering together by interests, competencies, and dispositions, an environment could be created that nurtures pre-service educators. Perhaps by creating an educational ecosystem that gives students a real view of the teaching profession, more FEA members will not only matriculate in teacher preparation programs, but more will become and remain part of the teaching force.

In light of these important findings and implications, this research has its limitations. The data were self-reported and the researcher did not employ a mixed methods approach to verify the accuracy of the respondents' answers to the survey. Further, this was not a longitudinal study and was only conducted in one state. It remains to be seen if these individuals will become teachers. And if they succeed in becoming certified teachers, will they remain as career educators? It would be informative design studies that could use the Holland coding system as a means of predicting later outcomes among those expressing a desire to go into teaching.

Nevertheless, many questions arise when investigating teacher recruitment and more research is warranted. It would be helpful to know what attracts adolescents to the profession or discourages them considering teaching as a profession and what role perceived professional self-efficacy plays in one's decision to choose a vocation. Additionally, it would be useful to learn more about the chain of events that take place when adolescents begin to investigate careers. Furthermore, studying the individuals whose Holland code was not congruent with that for in-service teachers may provide interesting insight into the teacher shortage.

More than five decades of simply making the public aware of the shortage is not going to increase the teacher supply. Holland's theory serves as a proper theoretical lens for examining the teacher shortage and using the *Self-Directed Search* as a means to solve the teacher shortage serves as a practical method to approach teacher recruitment and induction at a time of when more teachers than ever are needed.

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